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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/689,673 | 10/22/2003 | Hyouk Kwon | 0630-1858P | 4905 |

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| EXAMINER |
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RODRIGUEZ, PAUL L

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| ART UNIT | PAPER NUMBER |
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2125

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,673

Applicant(s)

KWON ET AL.

Examiner

Paul L. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. Claims 1-14 are presented for examination.

Specification

2. The disclosure is objected to because of the following informalities:

Page 6 line 17 states "...exposed to ion beam is controller", awkward language, would be better as "...controlled".

Appropriate correction is required.

Claim Objections

3. Claim 3 is objected to because of the following informalities:

Claim 3 lines 1-2 state "the milling-processed specimen", previously the claim recites "producing a specimen" and "milling the deviation region of the specimen", but there is no previous reference to "a milling-processed specimen", would be better as "the milled specimen" to avoid any confusion or possible antecedent issues.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishitani et al (U.S. Pub 2002/0092985). The claimed invention reads on Ishitani et al as follows:

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Ishitani et al discloses (claim 1) an appearance processing method (title, figure 3) comprising designing a reference appearance for designing a set shape as a theoretical value (a desired shape to be machined would be theoretical, step S13, paragraph 39-41), producing a specimen (reference number 108, sample), comparing the reference appearance with the specimen and thus setting a deviation region (paragraph 41-43, step S13), and performing ion beam milling for milling the deviation region of the specimen by ion beam (paragraph 44-48, step S15), (claim 3) further comprising a step of comparing the milling-processed specimen with the reference appearance after the ion beam milling thus to obtain a deviation and milling the deviation region repeatedly thus to make the specimen consist with the reference appearance (steps S21-S25), (claim 4) wherein the specimen is formed as a shape that can be repeatedly and massively produced (inherent, there is no suggestion that the sample, 108 can't be massively produced), and (claim 5) wherein a designed reference appearance includes a concave surface, a convex surface, or a plane in the step of designing the reference appearance (figure 7B and c show the bottom of the machined region as planer). Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishitani et al (U.S. Pub 2002/0092985) in view of Wang et al (U.S. Pat 6,423,240).

While Ishitani et al teaches most all of the instant invention as applied to claim 1 above, and also teaches controlling milling time (steps S13, 14, 16, 18, 19). Ishitani et al fails to teach wherein the ion beam milling is performed by milling the specimen by controlling an incidence angle for the ion beam.

Wang et al teaches wherein the ion beam milling is performed by milling the specimen by controlling an incidence angle for ion beam and milling time (abstract, col. 5 line 59 – col. 6 line 6).

Ishitani et al and Wang et al are analogous art because they are both related to ion beam milling.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the time and angle control of Wang et al in the ion beam machining method and apparatus of Ishitani et al because Wang et al teaches that the present

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method can be used in a batch process, the method can be used to reduce and/or remove unwanted materials using a proper milling angle and changing the topography of the surface at most any milling angle (col. 7 lines 12-36).

8. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishitani et al (U.S. Pub 2002/0092985) in view of Miller (U.S. Pub 2004/0099638).

While Ishitani et al teaches most all of the instant invention as applied to claim 1 above, Ishitani et al fails to teach wherein the specimen is a coupling of hetero material.

Miller teaches ion beam milling, particularly suited for mass production, modifying angle and cycle times to control ion milling and the production of wafers, it is well known that hetero material is used in the production of wafers and integrated circuits.

Ishitani et al and Miller are analogous art because they are both related to ion beam milling.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the hetero material well known in the art of wafer processing and circuit formation of Miller in the ion beam machining method and apparatus of Ishitani et al because Miller teaches ion beam milling particularly suited for high-volume mass production of semiconductor chips (abstract).

9. Claims 6 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishitani et al (U.S. Pub 2002/0092985) in view of Want et al (U.S. Pat 6,423,240) as applied to claims 1-5 above, and further in view of Andino et al (U.S. 6,726,322).

Ishitani et al as modified by Wang et al teaches an ion beam milling method as recited in claims 1-5 for the reasons above, differing from the invention as recited in claims 6 and 8-14 in that their combined teachings lacks (claim 6) wherein the specimen is a transparent material, (claim 8) an aspheric lens fabricating method, comprising designing a desired aspheric surface, producing a basic lens of an arbitrary shape, comparing the desired aspheric surface with the basic lens and thus setting a deviation region, performing ion beam milling for milling the deviation region of the basic lens by ion beam, and processing a shape of the basic lens with comparison with the desired aspheric shape by the ion beam milling and making the basic lens consist with the desired aspheric shape, thereby completing, (claim 11) wherein the desired aspheric surface has a parabolic shape, (claim 12) wherein the desired aspheric surface has an elliptical shape (claim 13) a stylus profiling method and (claim 14) an interferometer.

Andino et al teaches that it is well known to produce contact lenses using an ion beam milling device (col. 7 line 43 – col. 8 line 39), wherein the specimen is a transparent material (inherent to a contact lens), (claim 8) an aspheric lens fabricating method, comprising designing a desired aspheric surface (col. 3 lines 32-37), producing a basic lens of an arbitrary shape (col. 8 lines 1-13, “sample”), comparing the desired aspheric surface with the basic lens and thus setting a deviation region, performing ion beam milling for milling the deviation region of the basic lens by ion beam, and processing a shape of the basic lens with comparison with the desired aspheric shape by the ion beam milling and making the basic lens consist with the desired aspheric shape thereby completing (obvious, there is a desired lens shape and the sample is milled using the ion beam device to produce the required and desired lens col. 7 line 43 – col. 8 line 39), (claim 11) wherein the desired aspheric surface has a parabolic shape (col. 2 lines 50-53, col. 3 lines 32-37,

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inherent to a contact lens), (claim 12) wherein the desired aspheric surface has an elliptical shape (col. 3 lines 32-54, inherent to a contact lens) and (claim 13, 14) a stylus profiling and interferometer method, (well known in the art of measuring and ion beam milling).

Ishitani et al as modified by Wang et al and Andino et al are analogous art because they are both related to ion beam milling.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the lens production of Andino et al in the ion beam milling of Ishitani et al as modified by Wang et al because Andino et al teaches the production of an improved contact lens which also has an aspheric shape (all).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shichi et al (U.S. Pat 6,664,552) – teaches ion beam milling controlling the incident angle to control milling.

Ring (U.S. Pat 6,565,720) – teaches ion beam milling that compares detection data with an original design to control the milling.

Williams et al (U.S. Pat 6,238,582) – teaches an ion beam apparatus and method that controls using incidence angles.

Ray (U.S. Pat 6,138,503) – teaches ion milling using a stylus and an interferometer.

Lindquist et al (U.S. Pat 5,541,411) – teaches an ion beam milling system that controls based upon a sensed image.

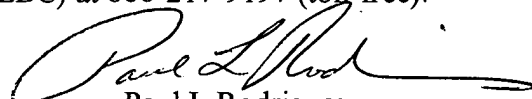
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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul L. Rodriguez whose telephone number is (571) 272-3753.

The examiner can normally be reached on 6:00 - 4:30 T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Paul L Rodriguez
Primary Examiner
Art Unit 2125

PLR
4/28/05